

Organization 2800 Bldg./Room 201

U. S. DEPARTMENT OF COMMERCE
COMMISSIONER FOR PATENTS

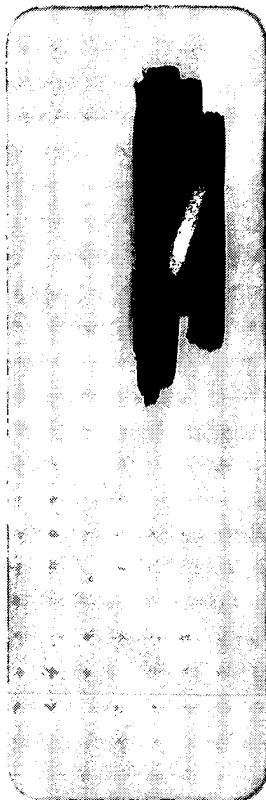
P.O. BOX 1450

ALEXANDRIA, VA 22313-1450

IF UNDELIVERABLE RETURN IN TEN DAYS

OFFICIAL BUSINESS

**RETURN TO SENDER
AN EQUAL OPPORTUNITY EMPLOYER
BANKRUPT - CLOSED**



U.S. OFFICIAL MAIL	
U.S. POSTAGE	
PENALTY FOR PRIVATE USE \$300	05.75
NET F.G. H. SEC. 1010	★ ★ ★

**RETURN TO SENDER
BANKRUPT - CLOSED**

**RETURN TO SENDER
BANKRUPT - CLOSED**



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/027,940	12/19/2001	Pablo I. Rovira	M-12332 US	2588

7590 03/02/2004

SKJERVEN MORRILL MACPHERSON LLP
25 METRO DRIVE
SUITE 700
SAN JOSE, CA 95110

EXAMINER

PHAM, HOA Q

ART UNIT	PAPER NUMBER
----------	--------------

2877

DATE MAILED: 03/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

RECEIVED
MAR 17 2004
TECHNOLOGY CENTER 2800

Office Action Summary	Application No.	Applicant(s)	
	10/027,940	ROVIRA ET AL.	
	Examiner	Art Unit	
	Hoa Q. Pham	2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) 22-27 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>12/19/01</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of invention of Group 1 (claims 1-21) on December 01, 2003 is acknowledged.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-5, 9-12, 14-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Law (5,754,296) in view of Carter et al (4,508,832).

Regarding claims 1, 9-11, 14, and 18, Law discloses an ellipsometric microscope comprises a light source (14), a spatially dependent polarizing element (26) in the path of the light beam, a multi-element detector (CCD) (34) within the path of the light beam for detecting the intensity of the light beam reflected from the sample (58). Law does not explicitly teach that light source is a pulsed light source for generating a pulsed light beam; however, such a feature is known in the art as taught by Carter et al. Carter et al, from the same field of endeavor, teach that the use of a chopper for providing a periodically interrupted signal (pulsed light beam) in the ellipsometer (column 7, lines 17-38 and column 8, lines 3-6). It would have been obvious to one having ordinary skill in the art at the time the invention was made to include in Law a chopper as taught by

Art Unit: 2877

Law for the purpose of providing a pulsed light beam. The rationale for this modification would have arisen from the fact that using such chopper would provide a reference signal which gives phase sensitive detection enabling a great reduction in background noise as suggested by Carter et al.

Regarding claims 2 and 15, see column 7, line 19 of Carter et al for the use of a laser source.

Regarding claim 3, Law shows that the polarizer (28) is located after the retarder (26) (figure 1).

Regarding claims 4-5, 12, Law teaches that the beam expander (30) is located after the retarder. It would have been obvious to one having ordinary skill in the art at the time the invention was made to place the beam expander before the retarder because the device would function in the same manner. In addition, it has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse, 86 USPQ 70.

Regarding claim 17, Law shows that expanding means (30) is located in the in the path of the light beam (figure 1).

4. Claims 6-8, 13, 16 and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Law and Carter et al as applied to claims 1-5, 9-12, 14-15, and 17-18 above, and further in view of Aspnes et al (6,134,012) and Houston et al (4,931,657).

Regarding claims 6 and 16, Law and carter et al do not explicitly teach the use of a wavelength-dispersing component; however, such a feature is known in the art as

taught by Aspnes et al. Aspnes et al discloses an ellipsometer in which the detector (72) including a wavelength dispersing component (128) and detector element (132) (figure 8). It would have been obvious to one having ordinary skill in the art at the time the invention was made to replace the light source and the detector of Law by a broadband light source and detector unit (72) of Aspnes et al if the polarization states is determined. The rationale for this modification would have arisen from the fact that the system of Aspnes et al can function over a wide range of wavelengths, thus providing a broad perspective of the sample as compared to measurements made at a single wavelength as suggested by Aspnes (column 1, lines 53-57).

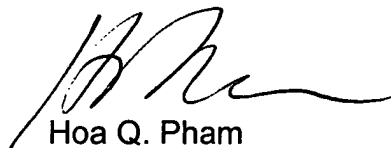
Regarding claims 7-8 and 13, Houston et al teaches means (60) coupled to the strobe light and the camera for synchronizing the operation of the strobe with the operation of the camera (column 2, lines 64-68, column 4, lines 51-63). It would have been obvious to one having ordinary skill in the art at the time the invention was made to include in Law and Carter et al a synchronizer as taught by Houston et al so that the CCD can detect the light only when the light source is turned-on, thus increase the signal to noise ratio.

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Following references are relative to ellipsometry: Wei et al (6,583,875), Kuroha (4,105,338), Fluckiger et al (6,052,188), Cohn et al (5,076,696), and Powell et al (6,525,892).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoa Q. Pham whose telephone number is (571) 272-2426. The examiner can normally be reached on 7:30AM to 6 PM, Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Hoa Q. Pham
Primary Examiner
Art Unit 2877

HP
February 20, 2004

#2

U.S. Department of Commerce, Patent and Trademark Office				Atty Docket No.		Serial No.	
				M-12332 US		Unknown	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				Applicants			
(Use several sheets if necessary)				Pablo I. Rovira and Lars Markwort			
				Filing Date		Group	
				Herewith		Unknown	
U.S. Patent Documents							
*Examiner Initial		Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate
HP	AA	5,392,116	Feb. 21, 1995	Makosch	356	351	
HP	AB	5,502,567	Mar. 26, 1996	Pokrowsky et al.	356	367	
HP	AC	5,889,593	Mar. 30, 1999	Bareket	356	445	
HP	AD	6,002,477	Dec. 14, 1999	Hammer	356	307	
HP	AE	6,160,621	Dec. 12, 2000	Perry et al.	356	381	
HP	AF	6,122,052	Sep. 19, 2000	Barnes et al.	356	328	
HP	AG	6,275,291	Aug. 14, 2001	Abraham et al.	356	367	
	AH						
Foreign Patent Documents							
							Translation
		Document	Date	Country	Class	Subclass	Yes No
HP	AI	EP 0 987 537 A2	Mar. 22, 2000	Europe			
	AJ						
OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)							
HP	AK	Azzram, R., "An arrangement of two reflective photodetectors for measuring all four Stokes parameters of light", <i>American Institute of Physics</i> (1991) Pages 2080-2082.					
HP	AL	Bennett, J., "Polarizers" <i>Optical Elements</i> , Chapter 3, Pages 3.1-3.70.					
HP	AM	Cumming, D. et al., "A variable polarisation compensator using artificial dielectrics" Elsevier Science (1999) Pages 164-168.					
HP	AN	Hauge, P., "Recent Developments In Instrumentation In Ellipsometry", <i>Surface Science</i> 96 (1980) Pages 108-140.					
HP	AO	Horn, T., "Liquid Crystal Imaging Stokes Polarimeter", <i>Astronomical Society of the Pacific</i> (1999) Pages 33-37.					
HP	AP	Jasperson, S., "A Modulated Ellipsometer For Studying Thin Film Optical Properties And Surface Dynamics" <i>Surface Science</i> 37 (1973) Pages 548-558.					
Examiner			Date Considered				
			2/20/04				
*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with your communication to applicant.							

JP575 U.S. PTO
10/02/04

12/19/01

U.S. Department of Commerce, Patent and Trademark Office						Atty Docket No.		Serial No.	
						M-12332 US		Unknown	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT						Applicants			
(Use several sheets if necessary)						Pablo I. Rovira and Lars Markwort			
						Filing Date		Group	
						Herewith		Unknown	
U.S. Patent Documents									
*Examiner Initial		Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate		
	AA								
	AB								
	AC								
	AD								
	AE			None					
	AF								
	AG								
	AH								
Foreign Patent Documents									
							Translation		
		Document	Date	Country	Class	Subclass	Yes	No	
	AI								
	AJ			None					
OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)									
100	AK	Kazama, A. et al., "Compact and high-speed ellipsometer" <i>SPIE</i> Vol. 1681 Pages (1992) 183-188.							
100	AL	Lee, J. et al., "Rotating-compensator multichannel ellipsometry: Applications for real time Stokes vector spectroscopy of thin film growth", <i>Review of Scientific Instruments</i> 69 (1998) Pages 1800-1810.							
100	AM	Oliva, E., "Wedged double Wollaston, a device for single shot polarimetric measurements", <i>Astronomy & Astrophysics Supplement Series</i> 123 (1977) Pages 589-592.							
100	AN	Smajkiewicz, A., "An Argument for a Filter Array vs. Linear Variable Filter in Precision Analytical Instrument Applications".							
100	AO	"Stokes Polarimetry Using Liquid-Crystal Variable Retarders", downloaded 6/11/01 from < http://www.meadowlark.com/AppNotes/appnote3.htm >, Meadowlark Optics, Inc. (1998-2001).							
100	AP	Chapter 3, Ellipsometer Systems, "Theory and Analysis of Measurements in Ellipsometer Systems" Pages 167-268.							
Examiner		Date Considered		2/20/04					
*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with your communication to applicant.									

Notice of References Cited	Application/Control No. 10/027,940	Applicant(s)/Patent Under Reexamination ROVIRA ET AL.	
	Examiner Hoa Q. Pham	Art Unit 2877	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-6,525,829	02-2003	Powell et al.	356/630
	B	US-5,076,696	12-1991	Cohn et al.	356/369
	C	US-6,052,188	04-2000	Fluckiger et al.	356/369
	D	US-4,105,338	08-1978	Kuroha, Noboru	356/365
	E	US-6,583,875	06-2003	Wei et al.	356/369
	F	US-4,508,832	04-1985	Carter et al.	436/517
	G	US-6,134,012	10-2000	Aspnes et al.	356/369
	H	US-5,754,296	05-1998	Law, Bruce M.	356/369
	I	US-4,931,657	06-1990	Houston et al.	250/559.08
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.